EJ – 1199

WAYNE KERR

[redacted]

MP MASTER

MA24514

EXTERNAL STANDARDS

Q761 SERIAL NO. 200

For use with VHF Admittance Bridge B801

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INTRODUCTION

These components have been produced to permit the performance of Wayne Kerr VHF Admittance Bridge B801 to be compared over all frequencies of its range (1-100 Mc/s). Separate standards are provided for checking with five alternative conductance values and with two capacitance values. A special jig is provided which fits on to the terminal block of the bridge and has spring-loaded connectors for the alternative conductance units. The complete set is housed in a fitted wooden box.

CONDUCTANCE STANDARDS

These comprise five cracked-carbon resistors and the associated connecting jig. The procedure for using these components is as follows:-

1 First, check the values of the conductance units to be used, on an a.f. or d.c. bridge and record the results in the table provided below. The long-term stability of the components is of the order of 1 percent.

Q761 Conductance Units - Measured Values

Serial Number 200

NOMINAL VALUE		Date 19.6.63		Date 5:10:64		Date		Date	
OHMS	M.MHOS	OHMS	M.MHOS	OHMS.	M.MHOS	OHMS	M.MHOS	OHMS	M.MHOS
20	50	19.8	50.51	19.8	50.51				
50	20	49.9	20.04	49.9	20.04				
70	14.3	69.5	14.39	69.7	14.35				
100	10	99.7	10.03	99.7	10.03				
200	5	199.4	5.014	199.8	5.004				

2 Set all bridge controls to zero and adjust the source and detector to the required frequency. With the conductance jig in position but with no conductance unit fitted, adjust the trim controls for a balance.

3 Insert the appropriate conductance unit.

4 Balance the bridge by means of the front panel controls and record the measured value of conductance.

5 Substitute, in turn, any other values of conductance at which the bridge is to be checked over its frequency range.

6 Repeat the adjustments to the trim controls and each measurement at convenient intervals of frequancy over the range to be checked, recording the indicated values at each step.

7 Correct all results obtained for the 50 millimho (20Ω) unit according to the following table:

Frequency	20	40	60	80	100	Mc/s
Add to Reading	0.2	0.3	0.5	0.75	1.0.	m.mhos

All other units supplied have small reactive terms which can be ignored.

After the above correction, all values obtained should lie within the tolerances specified in the B801 Instruction Manual. Where substantial errors exist, the bridge must be returned to Wayne Kerr for re-calibration.

CAPACITANCE STANDARDS

These units are flat-plate capacitors whose property is that their value (nominally 30 and 100 pF) remains constant over the entire range of the bridge (1 - 100 Mc/s). They do <u>not</u> provide a check on the absolute accuracy of the bridge. To check the capacitance accuracy of the bridge against frequency, the capacitor units are used as follows:

1 Tune source and detector to 1 Mc/s and, with both main dials at 0, trim the bridge for a null.

2 Connect the desired capacitor to the bridge and re-balance using the main C control and any R control. Record the main C reading.

3 Re-tune source and detector to 100 Mc/s without moving the capacitor. Re-Balance the bridge using the main C and R controls. Record the C reading.

4 Remove the capacitor and re-balance the bridge by means of the main C control. Note this new reading.

5 The difference between the two readings obtained at 100 Mc/s should lie within 2 percent of the value measured at 1 Mc/s.

If the difference obtained in Step 5 is appreciably outside the limits specified, the bridge should be returned to Wayne Kerr for re-calibration.

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